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EXAMINER

DASS, HARISH T

ART UNIT	PAPER NUMBER
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3628

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/846,121

Applicant(s)

ELAD ET AL.

Examiner

Harish T Dass

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/11/2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Typo error, Claim 12 is copied again in under "computer system"

Claim Objections

1. Claims 7-27 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim 7. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits. Particularly, claim 7 depends on claim 6 and claim 2.

Claims 7-27 objected to because of the following informalities: Claim 7 (f) is statutory improper, since claim 7 is a method claim not a product claim. Appropriate correction is required.

2. Claims 24, 39 and 51 objected to under 37 CFR 1.75 as being a substantial duplicate of claims 23, 38 and 50 respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19-21 and 46-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 19-21 and 46-48 are not clear to the Examiner to provide proper prior art reference. Please, provide more information where in specification these limitation are described and provide examples or more information to help examiner to understand these limitations for better search.

Claims 26 and 53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 and 53 are recites the limitation "the requests as employment positions" in line 2 of claim 26 and line 1 of claim 53. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As an initial matter, the United States Constitution under Art. I, §8, cl. 8 gave Congress the power to "[p]romote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries". In carrying out this power, Congress authorized under 35 U.S.C. §101 a grant of a patent to "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition or matter, or any new and useful improvement thereof." Therefore, a fundamental premise is that a patent is a statutorily created vehicle for Congress to confer an exclusive right to the inventors for "inventions" that promote the progress of "science and the useful arts". The phrase "technological arts" has been created and used by the courts to offer another view of the term "useful arts". See *In re Musgrave*, 167 USPQ (BNA) 280 (CCPA 1970). Hence, the first test of whether an invention is eligible for a patent is to determine if the invention is within the "technological arts".

Further, despite the express language of §101, several judicially created exceptions have been established to exclude certain subject matter as being patentable subject matter covered by §101. These exceptions include "laws of nature", "natural phenomena", and "abstract ideas". See *Diamond v. Diehr*, 450, U.S. 175, 185, 209 USPQ (BNA) 1, 7 (1981). However, courts have found that even if an invention incorporates abstract ideas, such as mathematical algorithms, the invention may nevertheless be statutory subject matter if the invention as a whole produces a "useful, concrete and tangible result." See *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* 149 F.3d 1368, 1973, 47 USPQ2d (BNA) 1596 (Fed. Cir. 1998).

This "two prong" test was evident when the Court of Customs and Patent Appeals (CCPA) decided an appeal from the Board of Patent Appeals and Interferences (BPAI). See *In re Toma*, 197 USPQ (BNA) 852 (CCPA 1978). In *Toma*, the court held that the recited mathematical algorithm did not render the claim as a whole non-statutory using the Freeman-Walter-Abele test as applied to *Gottschalk v. Benson*, 409 U.S. 63, 175 USPQ (BNA) 673 (1972). Additionally, the court decided separately on the issue of the "technological arts". The court developed a "technological arts" analysis:

The "technological" or "useful" arts inquiry must focus on whether the claimed subject matter...is statutory, not on whether the product of the claimed subject matter...is statutory, not on whether the prior art which the claimed subject matter purports to replace...is statutory, and not on whether the claimed subject matter is presently perceived to be an improvement over the prior art, e.g., whether it "enhances" the operation of a machine. *In re Toma* at 857.

In *Toma*, the claimed invention was a computer program for translating a source human language (e.g., Russian) into a target human language (e.g., English). The court found that the claimed computer implemented process was within the "technological art" because the claimed invention was an operation being performed by a computer within a computer.

The decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* never addressed this prong of the test. In *State Street Bank & Trust Co.*, the court found that the "mathematical exception" using the Freeman-Walter-Abele test has little, if any, application to determining the presence of statutory subject matter but rather,

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statutory subject matter should be based on whether the operation produces a "useful, concrete and tangible result". See *State Street Bank & Trust Co.* at 1374. Furthermore, the court found that there was no "business method exception" since the court decisions that purported to create such exceptions were based on novelty or lack of enablement issues and not on statutory grounds. Therefore, the court held that "[w]hether the patent's claims are too broad to be patentable is not to be judged under §101, but rather under §§102, 103 and 112." See *State Street Bank & Trust Co.* at 1377. Both of these analysis goes towards whether the claimed invention is non-statutory because of the presence of an abstract idea. Indeed, *State Street* abolished the *Freeman-Walter-Abele* test used in *Toma*. However, *State Street* never addressed the second part of the analysis, i.e., the "technological arts" test established in *Toma* because the invention in *State Street* (i.e., a computerized system for determining the year-end income, expense, and capital gain or loss for the portfolio) was already determined to be within the technological arts under the *Toma* test. This dichotomy has been recently acknowledged by the Board of Patent Appeals and Interferences (BPAI) in affirming a §101 rejection finding the claimed invention to be non-statutory. See *Ex parte Bowman*, 61 USPQ2d (BNA) 1669 (BdPatApp&Int 2001).

In the present application, Claims 1-27 have no connection to the technological arts. None of the steps indicate any connection to a computer or technology. Therefore, the claims are directed towards non-statutory subject matter. To overcome this rejection the Examiner recommends that Applicant amend the claims to better clarify which of the steps are being performed within the technological arts; for example:

"computer is used to for linear approximation, etc. which are supported by the specification."

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoham et al (hereinafter Shoham - US 6,584,451) in view of Lupien et al (6,012,046).

Re. Claim 1, Shoham discloses (a) creating a *buyers* abstract representation of at least one attribute of a request, and the relationship between at least one utility of the request and at least one state of the at least one attribute [see entire document particularly - *Abstract; Figure 2; C2 L1-L32; C3 L40-L59; C4 L41-L47; C12 L25-L30*]; (b) creating a *sellers* abstract representation of at least one attribute of an offer, and the relationship between the total price of the offering and at least one state of the at least one attribute [Figures 6A-6B; C2 L47-L56]; (e) signaling that the quantities and identities of assignments are accepted and that the transaction is committed by *buyers* and *sellers* [figures 6B, 12#1232; C2 L25-L27; C6 L9-L16]. *Shoham does not explicitly disclose* (c) computing a rating for overall satisfaction of the at least one attribute of a request with

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respect to a given offer, and (d) determining the quantity and identity of assignments of *sellers'* offerings to *buyers'* requests that produces the best set of matches for a given market. However, *Lupien* discloses (c) computing a rating for overall satisfaction of the at least one attribute of a request with respect to a given offer, and (d) determining the quantity and identity of assignments of *sellers'* offerings to *buyers'* requests that produces the best set of matches for a given market [*Lupien – abstract; C1 L50-L52; C2 L65 to C3 L5; C11 L21-L46*] to *provides a substantially greater price discovery across the full range of trade sizes*. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the disclosure of Shoham and include computing a rating for overall satisfaction of the at least one attribute of a request with respect to a given offer, and (d) determining the quantity and identity of assignments of *sellers'* offerings to *buyers'* requests that produces the best set of matches for a given market, as disclosed by *Lupien*, to provide a crossing network that matches buy and sell orders (items, goods, etc.) based on satisfaction and quantity profile.

Re. Claim 2, *Lupien* further discloses (a) recording the request and offer data, along with the transaction price and quantity, for the committed transactions, and for other transactions that scored sufficiently well, and for requests and offers that were not matched in the market [*Lupien –C6 L14-L29*] to *store the buyers/sellers profiles in database which can be used later*. (b) inferring (COLLECTING) market value

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relationships from other data sources, such as *sellers'* advertisements, and or *buyers'* requests for proposals (market prices) [C1 L50-52] to set a market price. And (c) using of mathematical function approximation techniques for constructing market value functions that describe the relationship between price and the states of various attributes in a hypothetical market [C5 L1-L7; C14 L25-L40] to compute a single size and price for transition. "It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine the disclosures of Shoham and Lupien to provide a system which can store market data and utilize the data to calculate price based on the stored and accumulated values for better approximate market value or average value.

Re. Claims 3-4, Shoham discloses (a) forming the best partition of the *buyers'* requests into groups or singletons of requests whose representation of attributes can be satisfied by the same *seller* offering [C4 L56 to C5 L15];(b) forming the combined abstract representation of the requests for the consortium, said representation which will satisfy each *buyer* in the consortium[C1 L50-L60]. Shoham does not explicitly disclose (c) constructing an artificial negotiating entity that will represent at least one consortium, and can conceal the identities of the *buyers* in the consortium. However, Lupien further discloses this step [C1 L40-L67] to preserve the anonymity of the traders. "It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine the disclosures of Shoham and Lupien to not discloses the identity of the trader as a business practice and better competition.

Re. Claim 5, Lupien further discloses wherein the at least one attribute includes both intrinsic qualities of the object of the request or offer, and extrinsic qualities of the transaction or market protocols, wherein the extrinsic attributes comprise commitment protocols and time qualifications [C5 L1-L7] to allow traders to input variables (attributes) other than price and quantity as a profile to provide specifics what they are looking for. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the disclosure of Shoham and include intrinsic qualities and extrinsic qualities of trading object to better describe the nature of the object of trade.

Re. Claim 6, Shoham discloses (a) combining abstract representations from at least two market participants, to combine maximize the satisfaction for the consortium of those participants, and
(b) using *buyers'* consortiums rather than individual *buyers* and *sellers'* consortiums, or individual *sellers*, in determining the best set of matches, and whereby a transaction can be accomplished between consortia, rather than individual *buyers* and *sellers* (OBCS and SellCo which can be a company made of sellers e.g., agricultural cooperative club) [C2 L33-65].

Claims 28-33 have same limitations as claims 1-6 above, respectively. Therefore these claims are rejected with same rational as claims 1-6.

Claims 7-13, 16, 18, 22-27 and 34-40, 43, 45, 49-56, are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoham and Lupien, as applied to claims 1-6 and 28-33 above, further in view of Conklin et al (hereinafter Conklin – US 6,141,653).

Re. Claim 7, Shoham discloses (a) forming the best partition of the *buyers'* requests into groups or singletons of requests whose representation of attributes can be satisfied by the same *seller* offering *and* (b) forming the combined abstract representation of the requests for the consortium, said representation which will satisfy each *buyer* in the consortium [C2 L57 to C3 L7; C4 L47 to C5 L14]. *Shoham does not explicitly disclose* (c) constructing an artificial negotiating entity that will represent at least one consortium, and can conceal the identities of the buyers in the consortium; and automatically joining sellers' offerings in a consortium by: (d) forming the best partition of the sellers' offerings into groups or singletons of offerings which considered together achieve the highest values on hypothetical market transactions, with regard to the value functions constructed in claim 2; (e) forming the abstract representation of the offerings for the consortium, said representation which will represent each offer in the consortium; and (f) a means of constructing an artificial negotiating entity that will represent at least one consortium, and can conceal the identities of the sellers in the consortium, and using the market value data from transactions to construct mathematical function approximations predicting the value of states of attributes for hypothetical transactions to construct a stream or compendium of market information. However, Conklin discloses

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(c) constructing an artificial negotiating entity that will represent at least one consortium, and can conceal the identities of the *buyers* in the consortium; and automatically joining *sellers'* offerings in a consortium by: (d) forming the best partition of the *sellers'* offerings into groups or singletons of offerings which considered together achieve the highest values on hypothetical market transactions (e) forming the abstract representation of the offerings for the consortium, said representation which will represent each offer in the consortium; and (f) a means of constructing an artificial negotiating entity that will represent at least one consortium, and can conceal the identities of the *sellers* in the consortium, and using the market value data from transactions to construct mathematical function approximations predicting the value of states of attributes for hypothetical transactions to construct a stream or compendium of market information [Abstract; Figures 1c, -1g, 1j-1n, 3; C8 L49-L52; C18 L37-L65; C25 L21-L34] to provide comprehensive iterative bargaining abilities for both buyers and sellers that enable them to negotiate all the terms and conditions of a transaction not just the price. Lupien discloses and using the market value data from transactions to construct mathematical function approximations predicting the value of states of attributes for transactions to construct a stream or compendium of market information [C7 30-L53C20 L54 to C22 L45] to achieve highest value of mutual satisfaction. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the disclosures of Shoham and Lupien and add artificial negotiating entity and hypothetical market transactions, as disclosed by Conklin to provide comprehensive negotiating

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abilities for both buyers and sellers that enable them to negotiate all the terms and conditions of a transaction not just the price.

Re. Claims 8-13, Lupien further discloses further comprising numerically representing the determination of best assignments and quantities as an optimization problem and optimizing the assignments and quantities by finding the total of each *buyer's* and each *seller's* satisfaction with the transactions to be committed, comprises matching the at least one attribute of a request and the at least one attribute of an offer by inferring the match of the attribute qualities of a request which are logically implied by attribute qualities of an offer, and further comprising determining the quantity and identity of assignments of *sellers'* offerings to *buyers'* requests which produce the best set of feasible matches for a given market, linear regression, numeric optimization, comprising using a total market excess value as the measure of highest total market value (satisfaction density) [C12 L33 to C14 L55; C12 L33-L36 (linear regression); C13 L48 to C14 L8 (numeric optimization)] to provide optimization approach which maximizes sequentially the mutual satisfaction at each stage of the allocation process, by assigning allocations based upon the highest remaining mutual satisfaction value and where the approach has the virtue of being computationally tractable and generally yielding allocations with tight spreads in price. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the disclosure of Shoham and Conklin and add optimization, as disclosed by Lupien, to best attributes which satisfies the transactions between the sellers and buyer.

Re. Claims 16 and 18, Shoham wherein the request and offer data, the transaction price and quantity, the committed transactions, other transactions that scored sufficiently well, and the requests and offers that were not matched in the market are made available to market participants [C7 L5-L45], and wherein an ontology is used for inferring the match of the at least one attribute state of a request which is logically implied by the at least one attribute state of an offer [C1 L16-L30; C9 L11-L14].

Re. Claims 22- 24, Shoham does not explicitly disclose invoking auction protocols when there is at least two requests per one offer or at least two offers per one request, wherein the abstract representation of the relationship of the utility of an attribute of the request, is created using at least one technique selected from the group consisting of (a) linear functions, (b) piece-wise linear functions, (c) logistic functions, (d) cubic splines, (e) look-up tables, and (f) other numeric functions that compute utility with respect to a given attribute's states, and wherein the abstract representation of the relationship between price of the offer and at least two states of an attribute of the offer, is created using at least one technique selected from the group consisting of (a) linear functions, (b) piece-wise linear functions, (c) logistic functions, (d) cubic splines, (e) look-up tables, and (f) other numeric functions that compute price with respect to a given attribute's states. However, these are well known for example, generally auction has more than one offer only the highest wins and statistical calculations are commonly done to calculate and predict the probability of success and

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efficiency of a process or an outcome with costly experiment. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the disclosures of Shoham, Lupien and Conklin to add statistical analysis to predict the success of auction prior to auctioning the goods or service.

Re. Claim 25, Shoham discloses further comprising communicating the abstract representations of requests and offerings by termsheets and offersheets, respectively (allow buyers to quote prices and invite sellers to accept the quote and purchase terms) [C1 L24-L28; C10 L38-L50].

Re. Claim 26, Shoham does not explicitly further comprising describing the requests as employment positions and describing the offerings as employee attributes and compensation requirements. However, this is well known that an agent can request for employment.

Re. Claim 27. Shoham discloses further comprising describing the requests as tasks to be accomplished, and describing the offers as agents, people and or software, willing to accomplish those tasks [C1 L2 L17-L31].

Claims 34-40, 43, 45, 49-54 have same limitations as claims 7-13, 16, 18, and 22-27 above, respectively. Therefore these claims are rejected with same rational as claims 7-13, 16, 18, and 22-27.

Re. Claim 55, Shoham discloses wherein the information is communicated through the internet by internet protocol messages[C1 L15-L20].

Re. Claim 56. Shoham does not explicitly disclose wherein buyers and sellers access the system via web pages, Java clients, or other executable client programs. However, this is well known to which allows the user (buyer/seller) to place order using commonly distributed web browsers.

Claims 14-15, 17, 41-42 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoham, Lupien and Conklin as applied to claims 10 and 37 above, and further in view of Verba et al (hereinafter Verba – US 6236977).

Re. Claims 14-15 and 17, Neither Shoham nor Lupien or Conklin discloses comprising using a multiagent system to distribute the processing across many processors and memory devices to achieve timely calculations of best assignments and quantities, wherein a measure of the utility at the least one state of the at least one attribute is used to compute a rating for the overall satisfaction of a request with respect to a given offering by using at least one technique selected from the group consisting of: (a) weighted fuzzy-logic conjunction operators, (b) weighted geometric means, (c) a weighted version of Yager's T-NORM, (d) weighted arithmetic means, and (e) a

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weighted combination, with the weights derived via analytic hierarchy analysis, and wherein different instances of at least one module of the entire system is specialized for each different market. However, Verba discloses these steps [Abstract; Figures 1-4, 9; C2 L13-L36; C3 L26-L37; C4 L38-L60; C6 L24-L53; C22 L66 to C23 L56] to creating a uniform measure of value and a sophisticated computer-implemented business management system, which describes both in general terms, and with respect to specifics useful in real estate marketing where the buyer has its own requirements. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the disclosure of Shoham, Lupien and Conklin and include multi-agent system with mathematical algorithm to create a uniform value and a market (buy/sell) system to help agents in marketing their goods and service.

Claims 41-42 and 44 have same limitations as claims 14-15 and 17 above, respectively. Therefore these claims are rejected with same rational as claims 14-15 and 17.

Conclusion

Claims 1-56 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harish T Dass whose telephone number is 703-305-4694. The examiner can normally be reached on 8:00 AM to 4:50 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung S Sough can be reached on 703-308-0505. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Harish T Dass
Examiner
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Harish T Dass

3/18/05